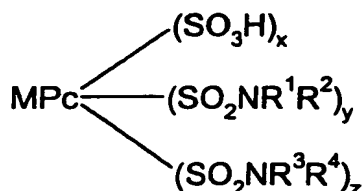


CLAIMS

1. A composition comprising:

(a) a major dye component which is a mixture of phthalocyanine dyes of Formula (1) and salts thereof.

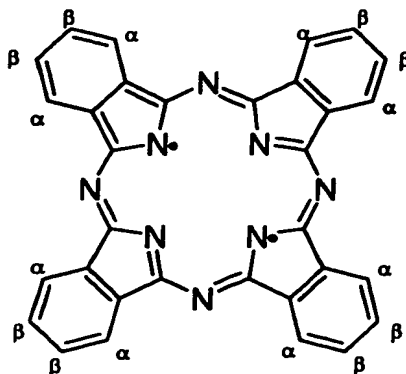


Formula (1)

wherein:

M is Cu or Ni;

Pc represents a phthalocyanine nucleus of formula;



$\text{R}^1$  and  $\text{R}^2$  independently are H or optionally substituted  $\text{C}_{1-4}$ alkyl;

$\text{R}^3$  is H or optionally substituted hydrocarbyl; and

$\text{R}^4$  is optionally substituted hydrocarbyl; or

$\text{R}^3$  and  $\text{R}^4$  together with the nitrogen atom to which they are attached represent an optionally substituted aliphatic or aromatic ring system;

x is 0.1 to 3.8;

y is 0.1 to 3.8;

z is 0.1 to 3.8;

the sum of  $(x+y+z)$  is 4; and

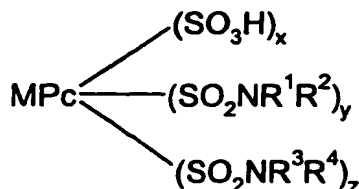
the substituents, represented by x, y and z, are attached only to a  $\beta$ -position on the phthalocyanine ring; and

(b) a liquid medium which comprises water and an organic solvent or an organic solvent free from water.

2. A composition according to claim 1 wherein M is Cu.
3. A composition according to either claim 1 or claim 2 wherein x has a value of 0.5 to 3.5, y has a value of 0.5 to 3.5 and z has a value of 0.5 to 3.5.
3. A composition according to any one of the preceding claims wherein R<sup>1</sup>, R<sup>2</sup> and R<sup>3</sup> are independently H or methyl and R<sup>4</sup> is optionally substituted aryl.
4. A composition according to any one of the preceding claims wherein R<sup>4</sup> is phenyl bearing at least one sulfo, carboxy or phosphato substituent and having further optional substituents.
5. A composition according to any one of the preceding claims wherein R<sup>4</sup> is phenyl bearing a single sulfo substituent.
6. A composition according to any one of claims 1 to 3 wherein R<sup>1</sup> and R<sup>2</sup> independently are H or methyl and R<sup>3</sup> and R<sup>4</sup> together with the nitrogen atom to which they are attached represent an optionally substituted 3 to 8 membered aliphatic or aromatic ring.
7. A composition according to any one of claims 1 to 3 wherein R<sup>1</sup> and R<sup>2</sup> independently are H or methyl, R<sup>3</sup> is H or optionally substituted C<sub>1-8</sub>alkyl and R<sup>4</sup> is optionally substituted C<sub>1-8</sub>alkyl.
8. A composition according to claim 7 wherein R<sup>1</sup> and R<sup>2</sup> are H, R<sup>3</sup> is H or C<sub>1-4</sub>alkyl bearing at least one acid substituent selected from the group consisting of -SO<sub>3</sub>H, -COOH or -PO<sub>3</sub>H<sub>2</sub> and R<sup>4</sup> is C<sub>1-4</sub>alkyl bearing at least one acid substituent selected from the group consisting of -SO<sub>3</sub>H, -COOH or -PO<sub>3</sub>H<sub>2</sub>.
9. A composition according to any one of the preceding claims wherein at least 70% by weight of the total amount of phthalocyanine dye is of Formula (1).
10. A composition according to claim 9 wherein at least 90% by weight of the total amount of phthalocyanine dye is of Formula (1).
11. A composition according to any one of the preceding claims wherein the dyes of Formula(1) are free from fibre reactive groups.

12. A composition according to any one of the preceding claims which is an ink suitable for use in an ink-jet printer.

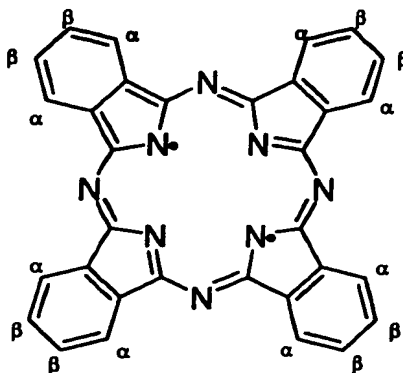
13. A mixture of dyes of Formula (4) and salts thereof:



Formula (4)

wherein:

M is Cu or Ni;  
Pc represents a phthalocyanine nucleus of formula;



$\text{R}^1$  and  $\text{R}^2$  independently are H or optionally substituted  $\text{C}_{1-4}$ alkyl;

$\text{R}^3$  is H or optionally substituted  $\text{C}_{1-8}$ alkyl;

$\text{R}^4$  is optionally substituted  $\text{C}_{1-8}$ alkyl or phenyl bearing at least one sulfo, carboxy or phosphato substituent and having further optional substituents other than amino or substituted amino; or

$\text{R}^3$  and  $\text{R}^4$  together with the nitrogen atom to which they are attached represent an optionally substituted 5- or 6-membered aliphatic or aromatic ring;

x is 0.1 to 3.8;

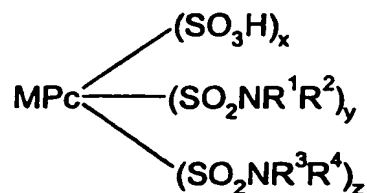
y is 0.1 to 3.8;

z is 0.1 to 3.8;

the sum of  $(x+y+z)$  is 4; and the substituents, represented by x, y and z, are attached only to a  $\beta$ -position on the phthalocyanine ring.

14. A mixture of dyes according to claim 13 of Formula (2) and salts thereof:

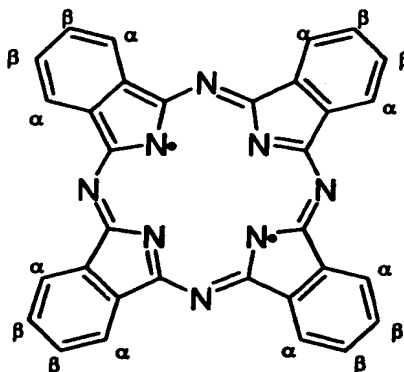
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Formula (2)

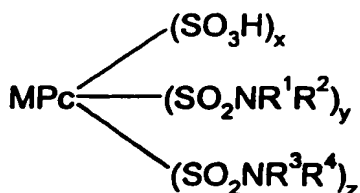
wherein:

- 5            M        is Cu;  
              Pc        represents a phthalocyanine nucleus of formula;



- 10             $\text{R}^1$ ,  $\text{R}^2$  and  $\text{R}^3$  independently are H or methyl;  
               $\text{R}^4$  is phenyl bearing at least one sulfo, carboxy or phosphato substituent and  
              having further optional substituents other than amino or substituted amino;  
              x is 0.5 to 3.5;  
              y is 0.5 to 3.5;  
 15            z is 0.5 to 3.5;  
              the sum of  $(x+y+z)$  is 4; and the substituents, represented by x, y and z, are attached only  
              to a  $\beta$ -position on the phthalocyanine ring.

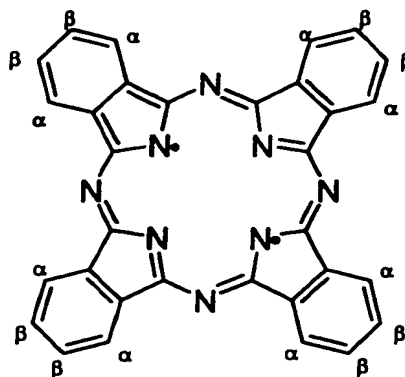
- 20            15.    A mixture of dyes according to claim 13 of Formula (3) and salts thereof.



Formula (3)

wherein:

- 25            M        is Cu;  
              Pc        represents a phthalocyanine nucleus of formula;



$R^1$  and  $R^2$  independently are H or methyl;

$R^3$  and  $R^4$  independently are  $C_{1-4}$ alkyl bearing at least one acid substituent, selected from the group consisting of  $-SO_3H$ ,  $-COOH$  or  $-PO_3H_2$ ;

$x$  is 0.5 to 3.5;

$y$  is 0.5 to 3.5;

$z$  is 0.5 to 3.5;

the sum of  $(x+y+z)$  is 4; and the substituents, represented by  $x$ ,  $y$  and  $z$ , are attached only to a  $\beta$ -position on the phthalocyanine ring.

16. A mixture of dyes according to claim 13 wherein  $R^1$  and  $R^2$  independently are H or methyl and  $R^3$  and  $R^4$  together with the nitrogen atom to which they are attached represent an optionally substituted 3 to 8 membered aliphatic or aromatic ring.

17. A mixture of dyes according to any one of claims 13 to 16 free from fibre reactive groups.

18. A composition which comprises which comprises a major dye component which is a mixture of phthalocyanine dyes of Formula (4), as defined in any one of claims 13 to 17, and water.

19. A process for forming an image on a substrate comprising applying a composition according to claim 12 thereto by means of an ink-jet printer.

20. A material printed with a composition according to any one of claims 1 to 12 or 18 or a dye according to any one of claims 13 to 17.

21. A material according to claim 20 which is a photograph printed using a process according to claim 19.

22. An ink-jet printer cartridge comprising a chamber and an ink wherein the ink is in the chamber and the ink is according to claim 12.